



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,567	06/07/2001	William R. Dudley	55806USA1A.002	7795

32692 7590 06/04/2003

3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER

SCALTRITO, DONALD V

ART UNIT	PAPER NUMBER
----------	--------------

1746

DATE MAILED: 06/04/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/876,567

Applicant(s)

DUDLEY ET AL.

Examiner

Donald V Scaltrito

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-35 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,10,17,21,22,36,39-41,43,47-49 and 52-55 is/are rejected.
- 7) ☒ Claim(s) 3,6-9,11-16,18-20,23,24,37,38,42,44-46,50,51 and 56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5 & 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamada (U.S. Patent No. 5,404,025).

Yamada discloses a semiconductor vacuum device including a semiconductor substrate, an insulator film formed on the substrate and a single crystal semiconductor film formed on the insulator film. The single crystal semiconductor film has a first and a second tapered edge opposite to one another but spaced apart over a gap formed in the insulator film. The first tapered edge acts as a cathode and the second tapered edge acts as a gate, the substrate acting as an anode into which said electrons emitted from the cathode above (note abstract).

With respect to Claim 1, Yamada discloses a vacuum device wherein a substrate is provided and on the substrate is disposed a cathode material and an insulator film wherein both the cathode material and the insulator film contact one another (see Figure 6 of this reference, also see column 7, lines 41-64). The Examiner would like to point out that the insulator film is being interpreted as an edge material because it is disposed along a tapered edge of the cathode. The Examiner would also like to point out that since the combination of the film and the edge of

Art Unit: 1746

the cathode material is inherently thicker than just the edge of the cathode material by itself, the overall disclosure is deemed to have an improved thickness profile. With respect to Claim 2, Yamada discloses a cathode material with a tapered edge wherein the insulator film at least partially covers the tapered edge of the cathode material (Figure 6). With respect to Claim 5, Figure 6 of Yamada shows that the edge material can be interpreted to represent a physical boundary to a tapered edge of the cathode material.

With respect to Claim 47, Yamada discloses a substrate wherein a cathode material and an insulator film are disposed on the substrate. Yamada also discloses that the insulator film and cathode material are in contact one another (see Figure 6 of this reference, also see column 7, lines 41-64). The Examiner would like to point out that the insulator film is being interpreted as an edge material because it is disposed along a tapered edge of the cathode.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 10, 17, 21, 22, 36, 39-41, 43, 48 & 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada, as applied to Claim 1 above, and further in view of Milbourn et al. (EP 0 610 255).

Art Unit: 1746

Yamada discloses all of the limitations, as discussed under 35 U.S.C. 102(b) rejections. Yamada fails to teach or fairly suggest, however, the use of a slotted die coater for production of the multiply coated substrates.

Milbourn et al. disclose a die coater that is able to apply discrete coating patches wherein the die coater is disposed with a multitude of coating patches that are interpreted by the Examiner as slots (see Figure 1 of this reference, see also column 2, lines 29-41). Milbourn et al. teach that it is beneficial to use such a slotted die coater because as is disclosed in this reference because more control can be exerted over such physical properties of the material(s) to be coated as size and uniformity while at the same time reducing the number of complex electronic control equipment (column 1, lines 27-45).

With respect to Claims 4, 36 & 39, it would have been obvious to one of ordinary skill in the art at the time the invention as a whole was made to incorporate a slotted die coater, as taught by Milbourn, into the invention of Yamada et al. since Milbourn teaches that more control can be exerted over such physical properties of the material(s) to be coated as size and uniformity while at the same time reducing the number of complex electronic control equipment.

With respect to Claim 10, Milbourn et al. disclose that the extrusion die coater is equipped with shims in the slots (column 5, lines 7-13). With respect to Claim 17, Milbourn et al. disclose using an apparatus that comprises an extrusion die for production of coatings (column 2, lines 33-36). With respect to Claims 21 & 22, Milbourn et al. disclose using an apparatus that comprises an extrusion die for production of coatings (column 2, lines 33-36). With respect to Claim 40, Yamada discloses the use of an insulator film that is being interpreted as an edge material. With respect to Claim 41, Milbourn et al. disclose that the extrusion die has

Art Unit: 1746

a multitude of patches, which are interpreted as slots. With respect to Claim 43, Milbourn et al. disclose that a pump supplies fluid to the die, rendering it a fluid-bearing die (column 2, lines 36-41). With respect to Claims 48 & 49, Milbourn et al. disclose the use of extrusion die coating.

Claims 52-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada, as applied to Claim 1 above, and further in view of Menon et al. (U.S. Patent No. 5,894,656).

Yamada discloses all of the limitations, as discussed under 35 U.S.C. 102(b) rejections. Yamada fails to teach or fairly suggest, however, a separator interposed between an anode and a cathode as well as a current collector that contacts the cathode surface.

Menon et al. teach electrochemical cells with an improved method of adhering the laminant components together by forming an anode or cathode directly on the surface of an electrolyte or separator (note abstract). Menon et al. go on to teach that the disclosure is a more efficient way of producing electrochemical cells because the process obviates the need for producing the anode and cathode in separate steps (see column 3, lines 49-56). Furthermore, Menon et al. teach an electrochemical cell stack comprising, in order: an anode, a separator, a first cathode, a current collector, a second cathode and a second separator (see Figure 1 of this reference).

With respect to Claims 52 & 55, it would have been obvious to one of ordinary skill in the art at the time the invention as a whole was made to incorporate a separator interposed between an anode and a cathode as well as a current collector that contacts the cathode surface, as taught by Menon et al., into the invention of Yamada et al. since Menon et al. teach that the disclosure is a more efficient way of producing electrochemical cells because the process

Art Unit: 1746

obviates the need for producing the anode and cathode in separate steps (see column 3, lines 49-56), leading to a more efficient manner in which to produce electrochemical cells. With respect to Claims 53 & 54, the metal film disclosed by Yamada that is being interpreted as an edge material is electrically insulating and since it is a metal film, it can act as a barrier to light.

Allowable Subject Matter

Claims 25-35 are allowed. The prior art of record fails to teach or fairly suggest providing a substrate and coating a *non-viscoelastic*, polymer-containing, electrically insulating edge material and a cathode material onto the substrate wherein the edge material and the cathode material contact each other.

Claims 3, 6-9, 11-16, 18-20, 23, 24, 37, 38, 42, 44-46, 50, 51, & 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record fails to teach or fairly suggest that the edge and cathode materials maintain a separation after being coated onto the substrate. The prior art of record fails to teach or fairly suggest that the edge and cathode materials are immiscible with respect to one another. The prior art of record fails to teach or fairly suggest that the edge and coating materials are coated nearly simultaneously. The prior art of record fails to teach or fairly suggest that the slots on a die cutter are spaced less than 5 mm apart. The prior art of record fails to teach or fairly suggest solvent coating the edge and cathode materials onto a substrate.

Art Unit: 1746

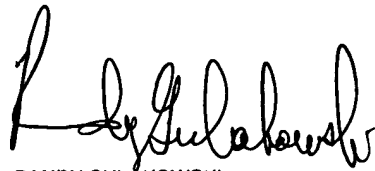
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald Scaltrito, whose telephone number is 703.305.4926. The examiner can be reached in his office on Monday-Friday between the hours of 9am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, may be reached at 703.308.4333. The official fax number for the organization where this application or proceeding is assigned is 703.305.3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661

Donald Scaltrito
Patent Examiner
Art Unit 1746
May 29, 2003



RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700